Healthy Missourians Initiative

Preventing Obesity and Other Chronic Diseases

Missouri's Nutrition and Physical Activity Plan

2005

Missouri Department of Health and Senior Services

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573-522-2820

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Dear Fellow Missourian,

The health and well being of our fellow citizens is of utmost importance. Unfortunately, obesity and weight problems among children and adults have increased at astounding rates over the past decade, resulting in health problems that have adversely affected the quality of life for thousands of people and cost the state more than one and a half billion dollars annually.

To help address this problem we have developed the *Healthy Missourians Initiative* to address our state's obesity epidemic and to encourage healthy lifestyles for Missourians of all ages.

In this report you will find strategies for preventing obesity and programs to increase physical activity and healthy eating among all Missourians, particularly children and their families.

This report was developed under the guidance of the Missouri Department of Health and Senior Services by the Missouri Council on the Prevention and Management of Overweight and Obesity and hundreds of Missourians who provided input on a number of actions than can lead to a healthier Missouri.

As Governor, I am pleased to share this program with employers, schools, senior centers, and other organizations who are interested in better health. I strongly encourage any interested parties to contact the Missouri Department of Health and Senior Services for more information on the *Healthy Missourians Initiative.*

Sincerely,

Matt Blunt

Dear Missourians,

Overweight and obesity are major concerns in our state. In Missouri more than one in five adults are considered obese, and more than half are overweight. The rates of overweight among children are also dismal. That's why we are pleased to be working with Governor Matt Blunt on the *Healthy Missourians Initiative*.

It was estimated in 2003 that $1.6 billion is spent annually in Missouri on obesity-attributed medical expenditures in adults with approximately half of that amount paid by Medicare and Medicaid. On an average, obese adults (18 to 65 years of age) spend 36 percent more on medical expenses annually compared with those of normal weight. These costs do not include the emotional and physical costs of this condition.

Partners that have contributed to this initiative include the Missouri Council on the Prevention and Management of Overweight and Obesity and the State Physical Activity Plan Work Team. The work of these groups was presented to the public in a series of meetings throughout the state in July 2004, and many useful comments were received and incorporated into a final plan. Due to the magnitude and complexity of this disease, the members of these groups, individually and collectively, will continue to work collaboratively and creatively to positively address the risk factors of nutritional intake and physical activity. The focused work of many people working together is needed to implement this plan.

This plan was designed to guide the work of a wide range of organizations and individuals to positively impact the eating habits and physical activity levels of Missourians. This plan incorporates many different levels of influence on our daily habits to encourage and support changed behaviors that are necessary to prevent and treat overweight and obesity.

Additional copies of the plan may be obtained on the web site of the Missouri Department of Health and Senior Services at http://www.dhss.mo.gov/Obesity or by calling 573-522-2820.

Sincerely,

Julia M. Eckstein, Director
Missouri Department of Health and Senior Services

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Acknowledgments

Grateful appreciation is extended to the members of the State Physical Activity Plan Work Team and the Missouri Council on the Prevention and Management of Overweight and Obesity for their time and expertise. Their guidance and thoughtful contributions provided direction for the nutrition and physical activity programs to prevent obesity and related chronic diseases in Missouri. *The names of these individuals are listed in Appendices C and D.*

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Overview-The problem

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Obesity is one of the most serious health issues facing society today. In the past two decades, the problem has grown at such an alarming rate, obesity is considered a national epidemic.[1,2,3] In Missouri, more than one in five adults are obese, and more than half of adults are overweight, which can lead to obesity.

In 2002, more than 23 percent of Missourians over the age of 18 were obese *(Figure 1).*

Obesity attacks the well-being of millions of people every year. It is a contributing factor in some of the most devastating and disabling diseases – diabetes, heart disease, arthritis and several types of cancer.

Obesity is a leading cause of preventable death in the United States. The stark reality is excess weight means an increase in the risk of premature death.

Obesity is a complex problem with numerous causes and consequences:

-It is an expensive epidemic. Overweight and obesity costs Missouri thousands of lives and well over a billion dollars every year.

-It contributes to many illnesses. People who are overweight or obese are frequently plagued by serious and long-lasting health concerns. Both physical and mental health are adversely affected.[4]

-It can decrease quality of life. In some cases, overweight and obese people have a diminished quality of life due to health concerns, discrimination and difficulty or inability to participate in certain activities.

-It is often misunderstood. Overweight and obesity are not simply a result of eating too much – although poor eating habits are often a contributing factor. The problems are caused by a number of factors that are often interrelated. According to the American Obesity Association, behavior, environment and genetics are all part of the overweight and obesity equation.[5]

"Taking action to address overweight and obesity will have profound effects on increasing the quality and years of healthy life and on eliminating health disparities in the United States."[6]

- U.S. Surgeon General, 2001

Overview-The problem

The good news is obesity can be prevented and treated. A number of things can be done to help people adopt a healthier lifestyle and overcome this serious health condition. Preventing and treating obesity and the associated health problems are important public health goals.

It is vital for health care professionals, elected officials, policy makers and the general public to fully understand the obesity issue. Understanding is crucial to effectively address the problem.

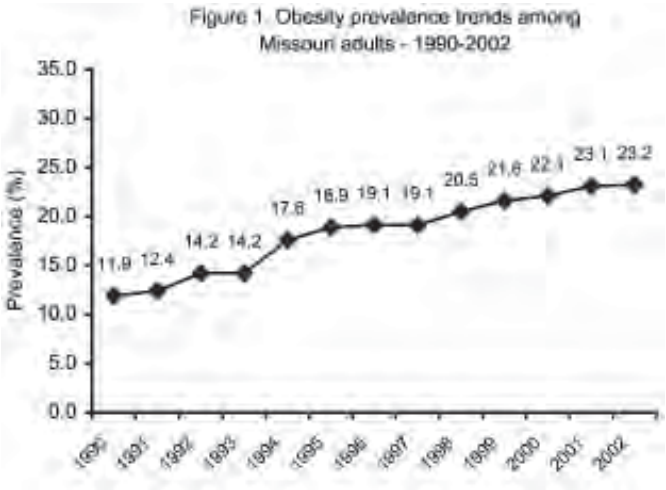
This report provides detailed information about obesity in Missouri. The report can assist health care professionals, program managers and policy makers in evaluating the obesity burden and identifying populations at the highest risk in order to target obesity treatment and prevention programs.

This report addresses some of the most important issues regarding obesity:

- How are overweight and obesity defined?
- How many Missourians suffer from these conditions?
- What are the health consequences of being overweight or obese?
- What is the economic impact on the state?

The answers to these questions can help Missouri work toward slowing and ending the obesity epidemic.

Obesity on the Rise



Source: Behavioral Risk Factor Surveillance System, Centers for Disease Control and Prevention

Overweight and obesity defined

What is considered overweight and obese?

Through the years, that question has been answered in many different ways. Today, the most commonly used indicator of a person's weight status is the body mass index or BMI. This number expresses a person's ratio of weight to height. The National Heart, Lung and Blood Institute developed this standard definition of overweight and obesity in 1998 based on an extensive evidenced-based review of morbidity and mortality related to weight.

Adults over age 20 with a BMI of 25 to 29.9 are considered overweight while those with a BMI of 30 or more are considered obese. The BMI chart *(Figure 2)* can be used to quickly determine an adult's weight status.

For children age 2 to 20 years old, the Centers for Disease Control and Prevention (CDC) has developed a definition of overweight based on the 2000 CDC growth charts. Overweight is defined as at or above the 95th percentile of BMI for age. At risk for overweight is defined as at or above the 85th percentile but less than the 95th percentile of BMI for age.

In this report, the definition of childhood obesity is equivalent to the CDC's definition of overweight for children. The definition of childhood overweight is equivalent to the definition of the CDC's definition of at risk for overweight.

Figure 2. Adult Body Mass Index (BMI) Chart

BMI (kg/m^2)	19	20	21	22	23	24	25	26	27	28	29	30	35	40
Height (in.)	Weight (lb.)													
58	91	96	100	105	110	115	119	124	129	134	138	143	167	191
59	94	99	104	109	114	119	124	128	133	138	143	148	173	198
60	97	102	107	112	118	123	128	133	138	143	148	153	179	204
61	100	106	111	116	122	127	132	137	143	148	153	158	185	211
62	104	109	115	120	126	131	136	142	147	153	158	164	191	218
63	107	113	118	124	130	135	141	146	152	158	163	169	197	225
64	110	116	122	128	134	140	145	151	157	163	169	174	204	232
65	114	120	126	132	138	144	150	156	162	168	174	180	210	240
66	118	124	130	136	142	148	155	161	167	173	179	186	216	247
67	121	127	134	140	146	153	159	166	172	178	185	191	223	255
68	125	131	138	144	151	158	164	171	177	184	190	197	230	262
69	128	135	142	149	155	162	169	176	182	189	196	203	236	270
70	132	139	146	153	160	167	174	181	188	195	202	207	243	278
71	136	143	150	157	165	172	179	186	193	200	208	215	250	286
72	140	147	154	162	169	177	184	191	199	206	213	221	258	294
73	144	151	159	166	174	182	189	197	204	212	219	227	265	302
74	148	155	163	171	179	186	194	202	210	218	225	233	272	311
75	152	160	168	176	184	192	200	208	216	224	232	240	279	319
76	156	164	172	180	189	197	205	213	221	230	238	246	287	328

Are you at a healthy weight?

To determine Body Mass Index (BMI) using the chart, find height in the left column and move across the row to weight. The number at the top of that column is the associated BMI.

- **Healthy weight:** BMI - 18.5 to 24.9
- **Overweight:** BMI - 25 to 29.9
- **Obese:** BMI - 30 or higher

Prevalence

Obesity has nearly doubled in Missouri in recent years.

Between 1990 and 2002, the prevalence of obesity among adults in the state increased from 11.9 percent to 23.2 percent *(Figure 1). (See Appendix E for county-specific prevalence rates.)*

Based on the national prevalence of obesity, it is estimated that more than 10 percent of Missouri's children 0 to 5 years old were obese in 1999-2000.[2]

While obesity has increased in both genders and in all racial groups, research shows certain groups of people are more prone to the problem. The prevalence of obesity in Missouri is higher among the following groups of adults:

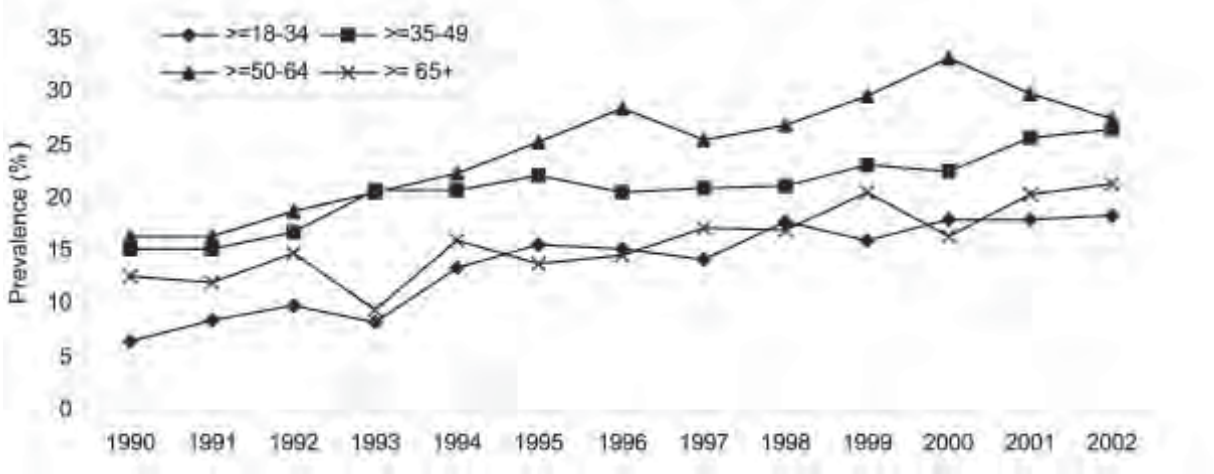
- People with an annual income of less than $15,000 (27.6 percent)
- People age 50 to 64 (27.5 percent) *(Figure 3)*
- African-American women (27.4 percent)
- People having less than a high school education (26.6 percent)

Programs focusing on these specific population groups are crucial to reducing obesity in Missouri and addressing the serious health conditions that will continue to compromise the well-being of millions of Missourians.

Since 1990, obesity has nearly doubled in Missouri.

Obesity and Age in Missouri

Figure 3. Obesity prevalence trends among Missouri adults, by age group



Source: Behavioral Risk Factor Surveillance System, Centers for Disease Control and Prevention

Childhood obesity

Childhood obesity has increased at a disturbing rate. More than 10 percent of children and adolescents in the United States are overweight.[2]

Being obese puts children at a greater risk for serious health problems now and in the future.

Type II diabetes, once considered an adult disease, has increased dramatically in children and adolescents. Overweight and obesity are closely linked to this type of diabetes. Risk factors for heart disease, such as high cholesterol and high blood pressure, also occur more frequently in obese children.[6]

Obese adolescents have a 70 percent chance of becoming overweight or obese adults.[6]

The most immediate consequence of being obese, as perceived by children themselves, is social discrimination.[6]

In the past five years in Missouri, the prevalence of obese middle school students increased by 75 percent, and the prevalence of obese high school students increased by 64 percent.

From 1993 to 2002, the prevalence of obese children 2 to 5 years of age participating in the Missouri Women, Infants and Children Supplemental Nutrition (WIC) program increased by nearly 58 percent.

Childhood obesity has increased in all racial and gender groups. Like the adult obesity problem, childhood overweight and obesity are also more prevalent in certain populations.

In Missouri, African-American boys had the highest prevalence of obesity in 2003 for middle school students. African-American males had the highest prevalence of obesity for high school age students in 2003. Hispanic children had a higher prevalence of obesity among elementary school students participating in the Missouri School-aged Children's Health Services Program during the 2001 school year, and among children younger than age 5 participating in the WIC program between 1993 and 2002.

Early efforts to prevent children from becoming overweight and obese are key to reducing the obesity epidemic.

Adolescents who are obese are much more likely to become overweight or obese adults.[6]

Health consequences

People who are overweight and obese are more likely to experience a multitude of health problems. Many of those problems are chronic diseases, the leading cause of death in Missouri.

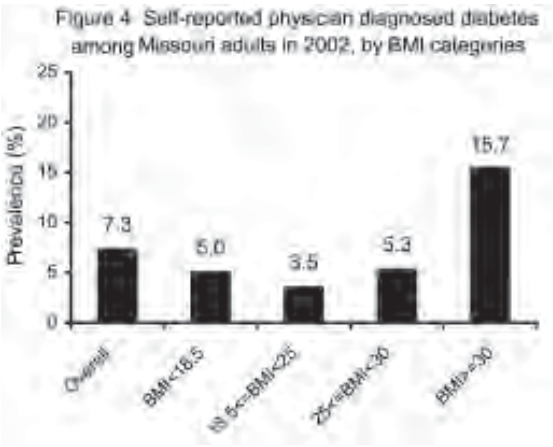
More than 30 medical conditions are associated with overweight and obesity including:[5]

- Heart disease
- Type II diabetes
- Arthritis
- Asthma
- Some types of cancer, including colon, gallbladder, kidney and breast

Obesity is often associated with premature death. Even a moderate weight excess of 10 to 20 pounds for a person of average height increases the risk of death, especially among adults age 30 to 64. And the risk of death rises the more overweight or obese a person becomes.[6]

Nationwide, an estimated 112,000 deaths per year may be attributed to obesity.[7]

Obesity and Diabetes



Source: Behavioral Risk Factor Surveillance System, Centers for Disease Control and Prevention

Overweight and obesity are adversely affecting the health of thousands of Missourians:

- More than 15 percent of people in Missouri with a body mass index (BMI) greater than 30 have diabetes *(Figure 4)*. Between 1988-2002, the prevalence of physician-diagnosed diabetes in Missouri adults increased from 4.9 percent to 7.3 percent.

- Overweight and obese Missourians are more likely to have high cholesterol. In 2001, 35.2 percent of overweight and 36.5 percent of obese individuals reported being diagnosed with high cholesterol compared to 24.7 percent of people with a healthy weight.

Health consequences

- Missourians with a BMI greater than 30 are more than twice as likely to have heart disease than those with a BMI between 18.5 and 25 *(Figure 5)*. In 2001, 6.9 percent of overweight and 9.3 percent of obese individuals reported having heart disease compared to 4.1 percent of people with a healthy weight.

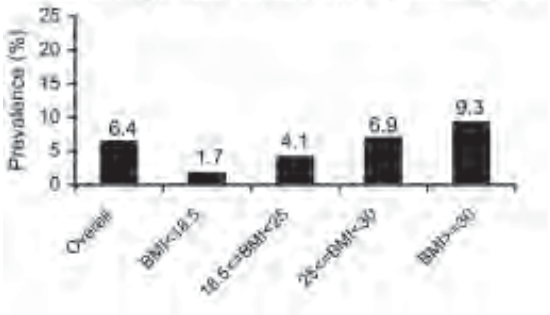
- Missourians with a BMI greater than 30 are more than twice as likely to have high blood pressure than those with a BMI less than 25 *(Figure 6)*. In 2001, 27.6 percent of overweight and 40.6 percent of obese individuals reported having high blood pressure compared to 16.5 percent of people with a healthy weight.

- Overweight and obese Missourians are more likely to have arthritis. In 2001, 37.1 percent of overweight and 49.5 percent of obese individuals had physician diagnosed arthritis or chronic joint symptoms compared to 29.7 percent of people with a healthy weight.

If the obesity trend continues, Missouri will likely see an increase in the development of many chronic diseases.

Obesity and Heart Disease

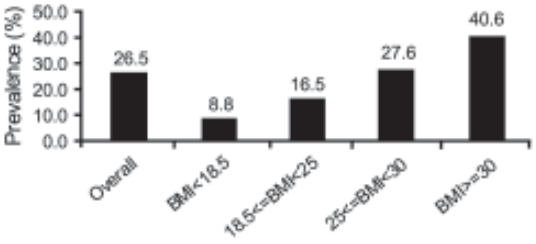
Figure 5. Self-reported physician diagnosed ischemic heart disease among Missouri adults in 2001, by BMI categories



Source: Behavioral Risk Factor Surveillance System, Centers for Disease Control and Prevention

Obesity and High Blood Pressure

Figure 6. Self-reported diagnosed high blood pressure among Missouri adults in 2001, by BMI categories



Source: Behavioral Risk Factor Surveillance System, Centers for Disease Control and Prevention

Health consequences

The Surgeon General's Report -

In 2001, the U.S. Surgeon General addressed obesity as one of the most important health challenges facing the nation. The *U.S. Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity* outlines numerous health problems related to overweight and obesity.[6]

Premature Death: Individuals who are obese have a 50 to 100 percent increased risk of premature death from all causes, compared to individuals with a healthy weight.

Heart Disease: The incidence of heart disease (heart attack, congestive heart failure, sudden cardiac death, angina or chest pain and abnormal heart rhythm) is increased in persons who are overweight or obese.

Diabetes: A weight gain of 11 to 18 pounds increases a person's risk of developing type II diabetes to twice that of individuals who have not gained weight. More than 80 percent of people with diabetes are overweight or obese.

Cancer: Overweight and obesity are associated with an increased risk for some types of cancer including endometrial (cancer of the lining of the uterus), colon, gallbladder, prostate, kidney and postmenopausal breast cancer.

Women gaining more than 20 pounds from age 18 to midlife double their risk of postmenopausal breast cancer, compared to women whose weight remains stable.

Breathing Problems: Obesity is associated with a higher prevalence of asthma.

Arthritis: For every two pound increase in weight, the risk of developing arthritis is increased by 9 to 13 percent.

Reproductive Complications: In addition to many other complications, women who are obese during pregnancy are more likely to have gestational diabetes and problems with labor and delivery.

Children and Adolescents: Risk factors for heart disease, such as high cholesterol and high blood pressure, occur with increased frequency in overweight children and adolescents compared to those with a healthy weight.

Type II diabetes, previously considered an adult disease, has increased dramatically in children and adolescents. Overweight and obesity are closely linked to type II diabetes.

Overweight adolescents have a 70 percent chance of becoming overweight or obese. This increases to 80 percent if one or both parents are overweight or obese.

The high cost of obesity

Obesity carries a high price in terms of lost lives and medical expense.

An estimated 112,000 premature deaths a year in the United States may be attributed to obesity.[7]

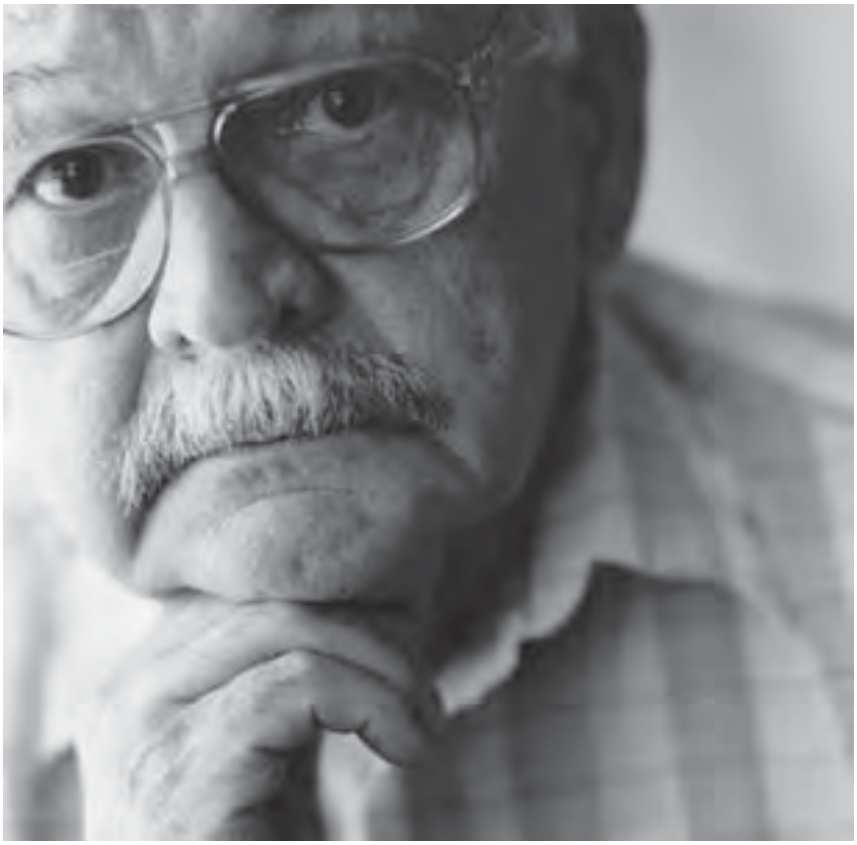
Obesity and its associated health problems have a significant impact on the health care system. Medical costs associated with obesity involve both direct and indirect costs.

Direct costs include preventive, diagnostic and treatment services. Indirect costs include the value of income lost from decreased productivity, restricted activity and absenteeism from the workplace due to obesity-related illness. Indirect costs also include the value of future income lost due to premature death.

In 1998, an estimated $78.5 billion in direct medical costs nationwide could be attributed to overweight and obesity.[8] In Missouri, health care costs attributed to adult obesity alone totaled $1.6 billion in 1998.[9]

Because about half the medical expenses in Missouri are paid by Medicaid and Medicare,[8] all citizens bear the financial burden. In 1998 in Missouri, $413 million paid by Medicare and $454 million paid by Medicaid were attributed to obesity-related health problems.[9]

If indirect costs were factored in, obesity-related costs would rise even higher.



In Missouri, direct medical costs attributed to obesity totaled $1.6 billion dollars in 1998.[9]

Quality of life

Many people who are obese do not enjoy the same quality of life as those with a healthy weight. Obese people report more problems with both physical and mental health.[4]

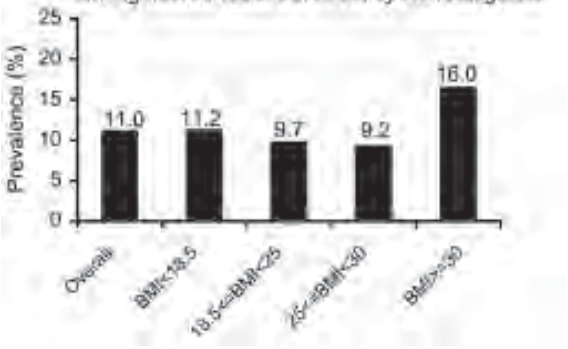
In 2002, 16 percent of obese individuals in Missouri reported 14 or more days of poor physical health during the previous 30 days while only 9.7 percent of those with a healthy weight reported 14 or more days of poor health *(Figure 7).*

Obesity also limits a person's ability to be active. Nearly twice as many obese people experience activity limitations than individuals with a normal weight. In 2002, 19.8 percent of obese people in Missouri reported activity limitations on 14 or more days during the previous 30 days compared to 10.5 percent of those with a healthy weight.

In addition, obesity can reduce a person's quality of life due to social, academic and job discrimination.[6]

Obesity and Physical Health

Figure 7. Self-reported poor physical health (14 or more days during the previous 30 days) among Missouri adults in 2002, by BMI categories



Source: Behavioral Risk Factor Surveillance System, Centers for Disease Control and Prevention

Obesity can reduce a person's quality of life due to social, academic and job discrimination.[6]

Overview-Missouri's plan

Although there is still much to be learned about obesity, it is known that the problem results from energy intake exceeding energy use. In simpler terms, obesity is most often caused by excess calorie consumption and/or inadequate physical activity.[6]

Missourians live in an environment that promotes poor eating habits and discourages physical activity in daily routines. Even small amounts of excess energy intake, if stored over a long enough period of time, can result in obesity.

Because obesity is one of the most serious health problems facing Missouri today, all Missourians must take action to help end this epidemic.

To guide this effort, Missouri has developed a strategic plan to combat the state's obesity problem. In this plan, the Missouri Council on the Prevention and Management of Overweight and Obesity has addressed the need to increase physical activity levels, improve dietary intake, increase the effectiveness of the health care system in obesity prevention and treatment and strengthen health-related public policies in Missouri.

The plan outlines specific actions related to weight that Missourians can take to improve their health. It is based upon the social-ecological model of behavior change, so several levels of influence are apparent throughout the plan.

Three major beliefs guide Missouri's plan:

1. A balance between nutrition and physical activity efforts is required to prevent and control obesity.
2. Science-based approaches must be used to improve nutrition and increase physical activity.
3. For approaches to be effective, many levels of influence must support the changes being implemented.

All Missourians must take action to help end the obesity epidemic.

Overview-Missouri's plan

The plan has four goals. Key strategies have been identified to help achieve those goals. Necessary actions to implement the strategies have been determined.

The plan was developed by the council with input from Missouri residents who attended six public meetings held throughout the state and commented via the Internet *(see Appendix A)*.

The plan includes some of the specific approaches defined by the Centers for Disease Control and Prevention (CDC) as essential to winning the battle against obesity as well as other approaches. Work plans to accomplish the actions in the strategic plan have been developed.

A separate implementation and evaluation plan will be created to determine the recommended objectives and results of efforts.

The approaches that are essential to preventing and reducing obesity are outlined on the next two pages, followed by the specific goals, strategies and actions Missouri has developed to ease the burden of obesity and help residents lead longer, healthier lives.

Vision

Missouri will be a state in which all residents are supported in maintaining healthy eating and physical activity behaviors. This support will be available through workplace policies and environments; community partnerships; school policies and environments; a competent, coordinated, proactive preventive health care system; and a credible, integrated and consistent public information system, with economic benefits and incentives for healthy lifestyles.

- The Missouri Council on the Prevention and Management of Overweight and Obesity

A healthier lifestyle

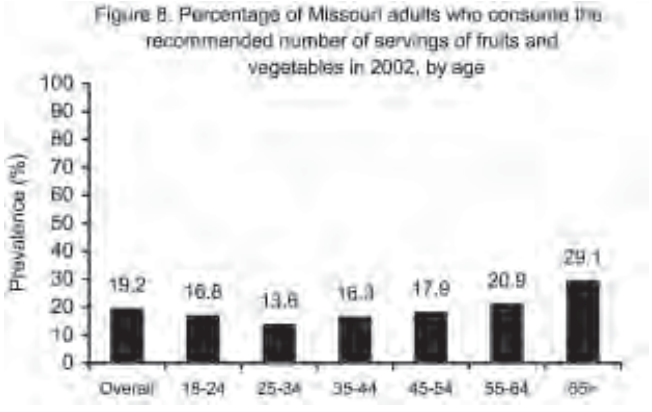
While a number of factors contribute to being overweight or obese, many things can be done to combat the problems.

Although genetics can predispose some individuals to overweight and obesity, environmental and behavioral factors also play an important role.[10,11] Modern life for most Missourians means poor eating habits and a lack of physical activity. Many of these factors can be changed to adopt a healthier lifestyle.

Breastfeed babies.
Research indicates that breastfeeding babies offers them protection against childhood obesity and related chronic diseases.[12,13] In recent years, more Missouri mothers are breastfeeding their newborn babies – from 55.5 percent in 1998 to 60.6 percent in 2003. The rate at which Missouri mothers are still breastfeeding when their babies are six months old also has increased – from 15.9 percent in 1990 to 28.1 percent in 2002.

Eat more fruits and vegetables daily.
Research shows that increasing the amount of fruits and vegetables eaten in conjunction with eating fewer calories is an effective strategy for weight management.[11] In 2002, less than 20 percent of Missouri adults ate the recommended five to nine servings of fruits and vegetables every day *(Figure 8)*.

Fruit and Vegetable Consumption



Source: Behavioral Risk Factor Surveillance System, Centers for Disease Control and Prevention

Modern life for most Missourians promotes poor eating habits and discourages physical activity.

Increase calcium and dairy consumption.
Research shows that consuming inadequate amounts of calcium and dairy products is associated with overweight.[14] Studies also indicate that weight loss is greater when individuals consume calcium in the form of dairy products compared to calcium ingested in the form of a supplement.[15]

A healthier lifestyle

Decrease size of portions consumed.
It is very likely that increasing portion sizes is contributing to the country's overweight and obesity problem. Larger portion sizes are associated with an increase in calories consumed. Studies show adults served varied portion sizes at lunch ate more as the portion size increased.[16]

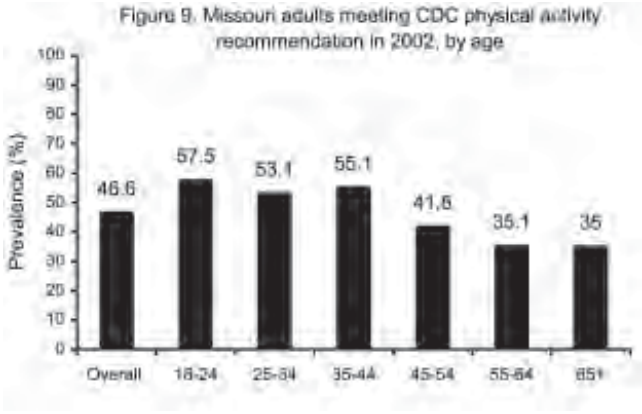
Consume fewer sweetened beverages.
The average amount of soft drinks consumed annually by Americans in the past 50 years has increased dramatically, from 10 gallons per person per year in the 1940s to 200 gallons per person per year today.[17] Research suggests that drinking a large quantity of sweetened beverages contributes to children and adults becoming overweight.[18,19]

Engage in moderate or vigorous physical activity.
Regular physical activity substantially reduces the risk of overweight and obesity and other chronic diseases. In 2002, only 46.6 percent of Missouri adults met the recommended levels of moderate and vigorous physical activity *(Figure 9)*. Additionally in 2002, 26.5 percent of Missouri adults reported no leisure time physical activity during the past month. (*See Appendix E for county specific prevalence.)*

Support school physical education.
Physical education classes at school are an ideal way to teach students how to develop fitness. For many children, it will be the only preparation for an active lifestyle. But in 2003, only 33 percent of Missouri high school students participated in daily physical education classes. Just 24.6 percent of female and 26.3 percent of male middle school students had physical education classes every day in 2003. *(Figure 10)*.

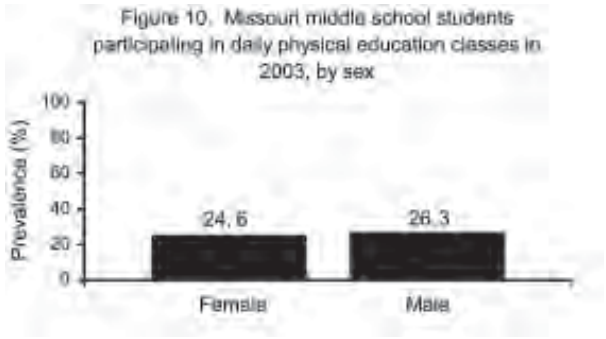
Watch less television.
Research shows that children who watch more television are more likely to become overweight.[20] In 2003, 38.1 percent of Missouri high school students and 43.7 percent of middle school students watched television for three or more hours on school days.

Physical Activity in Adults



Source: Behavioral Risk Factor Surveillance System, Centers for Disease Control and Prevention

Middle School Physical Education Daily Participation



Source: Youth Tobacco Survey, Missouri Department of Health and Senior Services

Goals, strategies, actions

Overall Goal: Decrease Obesity Among Children, Youth and Adults

Program Outcomes:*

- Increase breastfeeding
- Increase intake of fruits and vegetables
- Increase intake of dairy products
- Increase physical activity
- Decrease TV viewing

** Measurable outcome objectives are listed in Appendix B.*

Goal 1: Increase opportunities to adopt physical activity and nutritional habits that promote good health.

Strategy 1: Schools and child care facilities
Assist schools and child care facilities with providing education and support to improve healthy food choices and access to physical activity.

Actions:

1. Provide ongoing training, resources and assistance for child care centers and education agencies to:
   - Assess policies, environments and programs for support of healthy food choices and opportunities for physical activity;
   - Determine needed improvements;
   - Identify and implement actions for improvements; and
   - Evaluate impact of actions taken.
2. Assist schools and child care facilities to identify resources to which families can be referred for help with children at risk for obesity.
3. Identify and recognize successful approaches used in schools and child care centers that enable students and staff to improve nutrition and physical activity practices.
4. Create support for school board members and administrators and child care center directors to assure or implement curriculum improvements, policies and environments to support healthy food options and opportunities for physical activity by promoting the connection between health and learning.
5. Enhance professional preparation for teachers, administrators and child care providers to enable them to support healthy nutrition and physical activity.

Strategy 2: Workplace
Foster changes in the workplace to improve physical activity and nutritional habits.

Actions:

1. Engage employers to review and improve workplace policies and environments to provide healthy food options and opportunities for physical activity for employees by promoting the relationship between worker health and productivity and the economic benefits to the employer.
2. Provide ongoing training, resources and assistance for employers to:
   - Assess policies, environments and programs for support of healthy food choices, opportunities for physical activity and breastfeeding;
   - Determine needed improvements;
   - Identify and implement actions for improvements; and
   - Evaluate impact of actions taken.
3. Identify and recognize successful approaches used by employers that enable employees to improve nutrition, physical activity and breastfeeding practices.

Strategy 3: Families
Help families improve physical activity and nutritional habits.

Actions:

1. Identify and promote available resources or develop resources needed to help families with children at risk for obesity.
2. Engage local stakeholders, including families, in planning, implementing and evaluating programs to improve physical activity and nutritional habits.
3. Coordinate efforts to provide resources, support and training to assist families in improving nutrition, physical activity, breastfeeding and television viewing practices.

"Overweight and obesity must be approached as preventable and treatable problems with realistic and exciting opportunities to improve health and save lives."[6]

- U.S. Surgeon General, 2001

Goals, strategies, actions

Strategy 4: Communities
Coordinate and enhance supports for communities to improve physical activity and nutritional habits.

Actions:

1. Provide ongoing training, resources and assistance for communities to:
   - Identify populations at greatest risk for obesity and related chronic diseases;
   - Assess policies, environments and programs for support of appealing, affordable and accessible healthy food;
   - Assess policies, environments and programs for support of affordable, accessible and safe physical activity opportunities;
   - Determine needed improvements;
   - Identify actions to address needed improvements and coordinate implementation among community organizations; and
   - Evaluate impact of actions taken.
2. Engage community coalitions to increase opportunities and supports for physical activity and healthy eating.
3. Identify and recognize successful approaches used in communities to improve policies, environments and programs that enable residents to improve nutrition, physical activity and breastfeeding practices.
4. Support family-focused community activities that provide healthy nutrition and physical activity opportunities.

Goal 2: Increase the effectiveness of messages that result in the public improving nutritional habits and increasing physical activity.

Strategy: Consistent message
Design and deliver messages that consistently communicate how to safely and effectively improve nutrition and physical activity practices.

Actions:

1. Develop, conduct and evaluate educational initiatives that motivate target audiences to use safe and effective methods for improving nutrition and physical activity.
2. Coordinate delivery of consistent messages through programs and services conducted in education, workplace, community and health care settings.
3. Deliver messages to public officials about the health and economic costs of obesity in Missouri and supports needed to improve nutrition and physical activity practices.
4. Collaborate with the media to ensure consistent reporting of safe and effective methods for improving nutrition and physical activity.
5. Collaborate with the food industry and advertisers to deliver messages that promote healthy food choices.

Goal 3: Increase support for health care systems to promote physical activity and nutritional habits that prevent and control obesity and chronic disease.

Strategy 1: Health care providers and systems
Enhance prevention, treatment and management of weight through improved provider knowledge, skills and resources.

Actions:

1. Assist health care providers and systems with establishing consistent procedures for assessing patient nutrition and physical activity habits, determining weight status, prescribing treatment and managing long-term care.
2. Incorporate in educational requirements for health care professionals core content training in nutrition, physical activity, breastfeeding and weight reduction and maintenance.
3. Provide ongoing training, resources and assistance for health care systems to:
    - Assess policies, supports and provider knowledge and skill for patient education;
    - Determine needed improvements;
    - Identify and implement actions for improvements; and
    - Evaluate impact of actions taken.
4. Link health care systems with community resources for patient referral to improve nutrition and physical activity practices.

Goals, strategies, actions

Strategy 2: **Health care coverage**
Promote health care plan coverage for prevention and treatment of obesity.

Actions:

1. Help public and private health care plans find ways to provide coverage to the plans' enrollees for prevention and treatment of obesity.
2. Disseminate results of cost-benefit studies to support reimbursement for services to prevent and treat obesity.

Goal 4: Increase state-level public policies that promote physical activity and nutritional habits to prevent obesity and chronic disease.

Strategy 1: School policy
Strengthen state policies that support opportunities for children and youth to develop healthy nutrition and physical activity practices.

Actions:

1. Promote increasing state requirements for physical education and adequate recess time.
2. Encourage establishing state policies for schools to decrease access to nutrient-poor, high-calorie vending and ala carte foods.
3. Support restoring state funding for the Missouri Assessment Program (MAP) health and physical fitness components.
4. Ensure compliance with currently established policies and national standards that increase physical activity and nutritious foods in schools and child care centers.

Strategy 2: State policy
Promote state policies and supports for healthy nutrition and physical activity practices.

Actions:

1. Build support for Medicaid coverage of prevention and treatment of obesity.
2. Expand nutrition education efforts to help consumers use Food Stamp, WIC, and food bank benefits effectively to support individual and family nutritional needs.
3. Identify and investigate feasibility of state tax incentives for communities and employers to increase supports for physical activity (e.g., sidewalks, exercise facilities).
4. Expand and maintain a system to track weight status and associated risk factors.

Implementation and evaluation

The Missouri Department of Health and Senior Services (DHSS) and its partners in the fight against overweight and obesity will develop an implementation and evaluation plan as a companion document to the strategic plan.

A work plan will be developed to accomplish the actions in the strategic plan, and partners will identify steps their organizations can take to achieve the goals. The work plans will include detailed steps and time frames for completing specific actions as well as identify individuals responsible for assuring completion of the work. The evaluation section of the plan will assure appropriate results and will include data analysis for short-term, intermediate-term and long-term data items, as well as process evaluation. Letters of commitment will be requested from each partner to ensure accountability in achieving the actions outlined in the work plans.

The implementation and evaluation plan will be reviewed semiannually to determine progress and modify work as necessary, based on evaluation results and any other considerations that surface. Progress in accomplishing the actions will be tracked annually, at a minimum, through designated mechanisms or surveillance systems. DHSS staff will determine the updates needed in the implementation and evaluation plan with input from key partners.

The Missouri Council on the Prevention and Management of Overweight and Obesity will be provided with updates annually on progress made, difficulties encountered in implementing the plan and suggested revisions to the plan. The council will determine revisions to the strategic plan, if any, on an annual basis. At a minimum, a strategic planning process will be conducted during the fifth year of the plan to determine if course redirections are needed to achieve results.

Federal, state and local support

Support from partners and state and local officials is critical to the implementation of Missouri's plan. The implementation and evaluation plan will detail the resources available to support the strategic plan. Funding in addition to that provided by the Centers for Disease Control and Prevention is critical in the effort to improve the weight status of Missouri residents. Funds already being used for nutrition and physical activity programs could be redirected and leveraged to make a larger impact as a result of the strategic plan. It is anticipated that key partners will direct additional funds into critical projects to support the implementation of the plan. Funding from other state, federal and private sources, such as foundations, will be sought by the department and key partners. Support for disseminating key messages to influence Missouri residents to change their eating and physical activity behaviors will be requested from various media groups.

Key decision makers in the state legislature, state and local health administrations and partners will need to identify and implement policies and direct resources to reduce the risk factors that lead to overweight and obesity. This will require an ongoing evaluation of efforts and fine-tuning of interventions to ensure interventions continue to work in the targeted populations as society's knowledge, attitudes, behaviors and norms change.

The implementation and evaluation plan will include additional information on intervention sustainability. It is anticipated that many of the interventions chosen will focus on environmental and policy changes that will be long-term, and thus, sustainable.

Data sources

Behavioral Risk Factor Surveillance System (BRFSS) - Annual telephone survey of randomly selected adults over the age of 18 years conducted by the Missouri Department of Health and Senior Services and supported by the Centers for Disease Control and Prevention.

Missouri County Level Study - Telephone survey of more than 15,000 randomly selected adults over the age of 18 years conducted by the Missouri Department of Health and Senior Services in 2003.

Missouri Department of Health and Senior Services (DHSS) program data - Information obtained from local programs including WIC Food Frequency Questionnaire , Child Nutrition, Nutrition and Physical Activity Program to Prevent Obesity and Other Chronic Diseases (NPAPPO), Chronic Disease Prevention Program (CDPP), Community Health Assistance Resource Team (CHART), Breastfeeding and Diabetes programmatic data.

Missouri State Public Health Laboratory Metabolic Disease Unit (MDU) - Information obtained for every infant presenting for metabolic testing after birth.

Missouri Nutrition Survey for School Children (NSSC) - Periodic on-site survey of approximately 4,760 first through fifth graders attending randomly selected schools to be conducted by the Missouri Department of Health and Senior Services.

Pediatric Nutrition Surveillance System (PedNSS) - Nutritional status data collected for all children 0-4 years of age participating in the Missouri WIC Program.

Ross Mothers' Survey (RMS) - Annual ongoing mail survey to a nationally representative sample of new mothers.

School Health Profile (SHP) - Survey conducted with principals and teachers in even-numbered years from secondary public schools selected through systemic equal probability sampling. Survey is conducted by the Missouri Department of Elementary and Secondary Education.

Youth Risk Behavior Surveillance System (YRBS) - Survey of randomly selected public high school students (grades 9-12) conducted every odd-numbered spring since 1995 by the Missouri Department of Elementary and Secondary Education.

Youth Tobacco Survey (YTS) - Survey of randomly selected public middle and high school students (grades 6-12) conducted for the first time in 2003 by the Missouri Department of Health and Senior Services. Questions were added about eating, physical activity, television viewing and height and weight from which BMI's were calculated.

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Appendix A

The planning process

To examine and address the complex issue of obesity, the Missouri Council on the Prevention and Management of Overweight and Obesity entered into a participatory strategic planning process. This process was facilitated by the University of Missouri - Columbia Sinclair School of Nursing via contract. During this strategic planning process, the council developed the following vision:

> "Missouri will be a state in which all residents are supported in maintaining healthy eating and physical activity behaviors. This support will be available through workplace policies and environments; community partnerships; school policies and environments; a competent, coordinated, proactive preventive health care system; a credible, integrated and consistent public information system, with economic benefits; and incentives for healthy lifestyles."

At the first meeting during the planning process, the council developed a practical vision of how people would be supported in consuming nutritious foods and participating in recommended physical activity levels. The practical vision included the following areas:

- Workplace policies and environments that support healthy and productive workers
- Community partnerships create and support a healthy lifestyle
- Missourians know and practice healthy eating behaviors
- Competent, coordinated, proactive, preventive health care
- All Missourians physically active
- School policies and environments that promote healthy lifestyles
- Credible, integrated, consistent public information system
- Economic benefits and incentives for healthy lifestyles

At the second planning meeting, the council determined the issues in Missouri that are blocking the way to the practical vision and the underlying high rates of poor eating habits and low physical activity levels resulting in obesity. Those issues are:

- Society prioritizes treatment over prevention
- Social norms have not changed to keep up with current lifestyle
- Busy lifestyle crowds out healthy behaviors
- Inadequate support is offered for making lifestyle change
- People seek short-term solutions to long-term, complex problem
- Competitive capitalism overshadows healthy behaviors

The third meeting was dedicated to determining key directions. The council was asked to think strategically about the underlying contradictions in order to realize its vision. Actions that addressed the contradictions were identified and then combined into a handful of focused directions that created the strategies to achieve the objectives.

The planning process *(continued)*

After the three planning meetings, Department of Health and Senior Services staff compiled the draft state plan to prevent obesity. During this step, actions to increase physical activity previously determined by the state Physical Activity Plan Work Team were incorporated into the state plan to prevent obesity. The draft goals, strategies and actions were reviewed by DHSS staff from various programs impacting nutrition and physical activity and the Missouri Council on the Prevention and Management of Overweight and Obesity, using the approach proposed for subsequent public meetings.

The revised document was reviewed in six public meetings throughout the state; 224 people attended. The revised document was also placed on the web for review and comment; one individual commented. Both opportunities for participating in the comment process were announced in a news release issued approximately a week prior to the first meeting.

The effective implementation of any plan depends upon clarifying concrete actions to be accomplished, aligning resources, designating leadership roles and responsibilities and building team trust and support. The next step in the participatory strategic planning process was implementation planning. At this point, participants assessed their role in the implementation of the "big picture." Work teams were formed to put together a plan that addresses the brass tacks and details and assigns tasks to teams or individuals, including tasks related to evaluating the process of the work plan and the outcomes.

The objective of the implementation time line is to put wheels under the strategic directions through concrete, coordinated action that motivates further forward movement in the first 12 months of the plan. Implementation planning meetings were held from November 2004 through February 2005. Members of the work teams were staff from the Department of Health and Senior Services, members of the Missouri Council on the Prevention and Management of Overweight and Obesity and individuals who volunteered during the public meetings. Additional members were solicited to assure involvement of key organizations and agencies in the implementation process.

Appendix B

1. Increase in the percentage of infants breastfed:
    a. At birth from 60.6% in 2003 to 70.0% in 2010 (MDU).
    b. For at least 6 months from 28.1% in 2002 to 35.0% in 2010 (RMS).
2. Increase the percentage consuming the minimum number of recommended servings of fruits and vegetables in:
    a. Children participating in the Missouri Women, Infants and Children Supplemental Nutrition Program (WIC) from 67% in 2002 to 75% in 2010 and from 21% in 2002 to 26% in 2010 (program data), respectively.
    b. Elementary school students (NSSC, base line and target to be established in 2006).
    c. Middle school students from 20.2% in 2003 to 25.2% in 2010 (YTS, estimate).
    d. High school students from 15% in 2003 to 20% in 2010 (YRBS).
    e. Adults from 22.6% in 2002 to 30.0% in 2010 (BRFSS).
3. Increase the percentage consuming the minimum number of recommended servings of dairy products in:
    a. Elementary school students (NSSC, base line and target to be established in 2006).
    b. Middle school students from 23.4% in 2003 to 30.4% in 2010 (YTS).
    c. High school students from 16% in 2003 to 25% in 2010 (YRBS).
4. Increase physical activity in:
    a. Children participating in the Missouri WIC Program by decreasing the average number of hours of TV watching from 2.1 in 2002 to less than 2 hours in 2010 (DHSS program data).
    b. Elementary school students by decreasing the average number of hours of TV watching on an average school day (NSSC, base line and target to be established in 2006).
    c. Middle school students by increasing the percentage participating in vigorous physical activity at least 20 minutes 3 or more days per week from 71% in 2003 to 85% in 2010 (YTS).
    d. High school students by increasing the percentage participating in vigorous physical activity at least 20 minutes 3 or more days per week from 67% in 2003 to 80% in 2010 (YRBS).
    e. Adults by decreasing the proportion of adults aged 18 years or older who report no leisure time physical activity during the past month from 26.5% in 2002 to 20.0% in 2010 (BRFSS).
5. Increase the number of community environmental and policy changes made to support physical activity and healthy eating from 2 in 2004 to 12 in 2010 (DHSS program data).
6. Increase the percentage of schools with vending machines that offer:
    a. Bottled water from 86% in 2002 to 90% in 2010 (SHP).
    b. 100% fruit juice from 79% in 2002 to 85% in 2010 (SHP).
    c. Low-fat salty snacks from 74% in 2002 to 80% in 2010 (SHP).
    d. Fruits or vegetables from 30% in 2002 to 35% in 2010 (SHP).
7. Increase the percentage of schools that have a policy stating fruits or vegetables will be offered at school settings such as student parties, after-school programs, staff meetings, parents' meetings or concession stands (SHP, base line and target to be established with 2004 results).
8. Increase the percentage of schools that offer students opportunities to participate in before- or after-school intramural activities or physical activity clubs from 60% in 2002 to 70% in 2010 (SHP).

9. Increase the number of work sites that have developed policies for:
    a. Increasing physical activity at work (DHSS program data, base line and target to be determined in 2005).
    b. Increasing healthy food options in vending machines or cafeterias (DHSS program data, base line and target to be determined in 2006).
    c. Supporting breastfeeding (DHSS program data, base line and target to be determined in 2007).
10. Increase the number of work sites offering programs to increase physical activity and healthy eating for at least 8 weeks (DHSS program data, base line and target to be determined in 2005).
11. Change how families are losing weight by:
    a. Increasing the percentage of high school students who are trying to lose weight or keep from gaining it by:
        i. Exercising from 49% in 2003 to 55% in 2010 (YRBS).
        ii. Eating less food, fewer calories or foods lower in fat (YRBS, base line and target to be established in 2005).
    b. Increasing the percentage of adults who are trying to lose weight or keep from gaining it by:
        i. Engaging in physical activity or exercise from 64.5% in 2002 to 70.0% in 2010 (BRFSS).
        ii. Eating fewer calories from 15.1% in 2002 to 25.0% in 2010 (BRFSS).
12. Increase the number of local communities working to increase physical activity or healthy eating from 28 in 2004 to 38 in 2010 (DHSS program data).
13. Increase the number of educational initiatives that deliver information on safe and effective ways to improve nutritional habits and increase physical activity (program data, base line and target to be established in 2005).
14. Increase the reach of messages through media channels (DHSS program data, base line and target to be established in 2006).
15. Increase the number of programs delivering the chosen messages (DHSS program data, base line to be established in 2006).
16. Increase the percentage of adults who are trying to lose weight from 40.2% in 2002 to 55.0% by 2010 (BRFSS).
17. Increase the percentage of adults who are trying to maintain current weight from 62.4% in 2002 to 77.0% in 2010 (BRFSS).
18. Increase the percentage of adults who receive advice about their weight from a doctor, nurse or other health professional from 16.3% in 2002 to 25.0% in 2010 (BRFSS).
19. Increase the number of health care plans that require providers to routinely determine BMI at each patient visit (DHSS program data, base line to be determined in 2008).
20. Increase the number of medical and nursing schools that have included breastfeeding in the curricula from 2 in 2004 to 12 in 2010 (DHSS program data).

Appendix B

21. Increase the number of health care providers that utilize coordinated chronic care models from 63 in 2004 to 255 in 2010 (DHSS program data).
22. Increase the number of health care providers that offer programs to improve the health status of children through health education, exercise, nutrition and health promotion from 49 in 2001 to 100 in 2010 (ASMH).
23. Increase the number of health care providers that offer programs with the primary goal of weight reduction or control from 59 in 2001 to 65 in 2010 (ASMH).
24. Increase the percentage of health care plans that reimburse for preventive services (medical nutrition therapy and nutrition and physical activity counseling) (DHSS program data, base line and target to be determined in 2007).
25. Increase the percentage of health care plans that provide incentives for enrollees to engage in regular physical activity (DHSS program data, base line and target to be determined in 2007).
26. Increase the number of state policies for accredited K-12 schools that support physical activity and good nutrition (DHSS program data, base line and target to be determined in 2007).
27. Increase the number of state tax incentives provided to increase supports for physical activity to communities for sidewalks, bike lanes and recreational areas from 0 to 1 in 2005 (DHSS program data).

Appendix C

Missouri Council on the Prevention and Management of Overweight and Obesity

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Appendix D

State Physical Activity Plan Work Team

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Appendix E

Prevalence of Overweight, Obesity and No Leisure Time Physical Activity in Missouri Adults (2002-2003), by County*

County	Overweight Age-adjusted Prevalence (%)	Obesity Age-adjusted Prevalence (%)	No Leisure Time Physical Activity Age-adjusted Prevalence (%)
STATE AVERAGE	37.0	23.4	24.0
ADAIR	33.2	24.0	19.9
ANDREW	40.3	18.7	21.3
ATCHISON	39.6	19.4	25.8
AUDRAIN	38.4	21.9	21.1
BARRY	38.2	23.3	31.1
BARTON	34.2	25.1	26.4
BATES	32.4	26.6	28.5
BENTON	43.8	27.3	28.2
BOLLINGER	39.1	18.9	23.0
BOONE	38.6	20.1	16.0
BUCHANAN	37.6	22.7	26.8
BUTLER	32.9	36.3	33.9
CALDWELL	30.4	27.7	29.2
CALLAWAY	38.4	21.9	21.1
CAMDEN	33.1	26.5	26.6
CAPE GIRARDEAU	39.1	18.9	23.0
CARROLL	38.7	26.2	29.7
CARTER	38.0	25.3	29.2
CASS	36.2	26.7	29.2
CEDAR	43.7	21.9	26.5
CHARITON	38.7	22.8	23.0
CHRISTIAN	38.2	22.5	21.9
CLARK	33.0	24.7	25.4
CLAY	31.5	32.0	20.6
CLINTON	36.0	24.3	30.7
COLE	30.7	21.5	17.1
COOPER	41.5	25.9	25.2
CRAWFORD	35.3	26.4	36.1
DADE	43.7	21.9	26.5
DALLAS	36.2	28.5	26.6
DAVIESS	30.4	27.7	29.2
DEKALB	39.5	21.2	26.6
DENT	32.7	28.8	26.8
DOUGLAS	43.4	26.7	25.3
DUNKLIN	39.0	23.2	39.0
FRANKLIN	34.7	26.2	24.6
GASCONADE	27.8	35.9	30.8
GENTRY	39.5	21.2	26.6
GREENE	32.5	21.1	21.6

* Data source: Missouri County-level Study # Age-adjusted to 2000 U.S. Standard Population

Appendix E

Prevalence of Overweight, Obesity and No Leisure Time Physical Activity in Missouri Adults (2002-2003), by County (continued)

County	Overweight Age-adjusted Prevalence (%)	Obesity Age-adjusted Prevalence (%)	No Leisure Time Physical Activity Age-adjusted Prevalence(%)
GRUNDY	41.0	22.7	25.4
HARRISON	30.4	27.7	29.2
HENRY	31.2	25.0	20.7
HICKORY	43.8	27.3	28.2
HOLT	39.6	19.4	25.8
HOWARD	41.5	25.9	25.2
HOWELL	42.0	24.4	29.1
IRON	30.1	35.8	26.0
JACKSON	37.9	25.3	27.6
JASPER	35.5	26.6	25.0
JEFFERSON	34.7	26.2	24.6
JOHNSON	38.7	26.2	29.7
KNOX	33.0	24.7	25.4
LACLEDE	38.1	21.4	31.3
LAFAYETTE	36.2	26.7	29.2
LAWRENCE	43.7	21.9	26.5
LEWIS	35.2	26.0	21.6
LINCOLN	40.5	14.2	16.4
LINN	32.8	27.4	21.2
LIVINGSTON	32.8	27.4	21.2
MACON	34.0	28.6	30.1
MADISON	33.3	30.5	34.3
MARIES	39.7	26.9	22.7
MARION	35.2	26.0	21.6
MCDONALD	38.2	23.3	31.1
MERCER	41.0	22.7	25.4
MILLER	33.1	26.5	26.6
MISSISSIPPI	37.3	29.4	38.7
MONITEAU	30.7	21.5	17.1
MONROE	32.7	23.9	30.9
MONTGOMERY	27.8	35.9	30.8
MORGAN	42.2	20.0	25.0
NEW MADRID	34.8	26.6	33.7
NEWTON	34.2	25.1	26.4
NODAWAY	40.3	18.7	21.3
OREGON	42.0	24.4	29.1
OSAGE	39.7	26.9	22.7
OZARK	43.4	26.7	25.3

* Data source: Missouri County-level Study # Age-adjusted to 2000 U.S. Standard Population

Appendix E

Prevalence of Overweight, Obesity and No Leisure Time Physical Activity in Missouri Adults (2002-2003), by County (continued)

County	Overweight Age–adjusted Prevalence (%)	Obesity Age-adjusted Prevalence (%)	No Leisure Time Physical Activity Age-adjusted Prevalence (%)
PEMISCOT	39.0	23.2	39.0
PERRY	38.9	22.8	24.1
PETTIS	42.2	20.0	25.0
PHELPS	32.7	28.8	26.8
PIKE	35.1	30.1	28.7
PLATTE	31.5	32.0	20.6
POLK	36.2	28.5	26.6
PULASKI	38.1	21.4	31.3
PUTNAM	31.8	24.8	29.8
RALLS	35.1	30.1	28.7
RANDOLPH	34.0	28.6	30.1
RAY	36.0	24.3	30.7
REYNOLDS	38.0	25.3	29.2
RIPLEY	32.9	36.3	33.9
SALINE	38.7	22.8	23.0
SCHUYLER	33.2	24.0	19.9
SCOTLAND	33.0	24.7	25.4
SCOTT	37.3	29.4	38.7
SHANNON	38.0	25.3	29.2
SHELBY	32.7	23.9	30.9
ST CHARLES	40.5	14.2	16.4
ST CLAIR	31.2	25.0	20.7
ST FRANCOIS	33.3	30.5	34.3
ST GENEVIEVE	38.9	22.8	24.1
ST LOUIS CITY	30.6	31.4	30.7
ST LOUIS COUNTY	31.7	17.5	11.7
STODDARD	34.8	26.6	33.7
STONE	41.8	17.8	25.7
SULLIVAN	31.8	24.8	29.8
TANEY	41.8	17.8	25.7
TEXAS	34.0	30.7	25.3
VERNON	32.4	26.6	28.5
WARREN	40.5	14.2	36.1
WASHINGTON	35.3	26.4	16.4
WAYNE	30.1	35.8	26.0
WEBSTER	38.2	22.5	21.9
WORTH	39.5	21.2	26.6
WRIGHT	34.0	30.7	25.3

** Data source: Missouri County-level Study # Age-adjusted to 2000 U.S. Standard Population*

Missouri Department of Health and Senior Services

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